

IN THE SENATE OF THE UNITED STATES.

LETTER

FROM

THE SECRETARY OF WAR,

RELATIVE TO

The location of the proposed water way between Delaware Bay and Rehoboth Bay.

APRIL 23, 1892.—Referred to the Committee on Commerce and ordered to be printed.

WAR DEPARTMENT,
Washington, April 21, 1892.

SIR: I have the honor to transmit a letter from the Chief of Engineers dated the 21st instant, inclosing copies of the correspondence between the Delaware Congressional delegation and the War Department relative to the location of the proposed water way between Delaware Bay and Rehoboth Bay on line of the inland water way between Chincoteague Bay and Delaware Bay, together with copies of reports of December 18, 1891, and February 4, 1892, with inclosures, from W. F. Smith, United States agent, major of Engineers, retired; which correspondence is furnished in answer to a resolution of the Senate dated April 20, 1892, calling for the same.

Very respectfully,

S. B. ELKINS,
Secretary of War.

THE PRESIDENT OF THE UNITED STATES SENATE.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., April 21, 1892.

SIR: I have the honor to acknowledge receipt from the War Department of Senate resolution of the 20th instant, and in answer to its reference to this office for report to submit the accompanying copies of the correspondence between the Delaware Congressional delegation and the War Department, relative to the location of the proposed water way between Delaware Bay and Rehoboth Bay, on line of the inland water way between Chincoteague Bay and Delaware Bay, together with copies of reports of December 18, 1891, and February 4, 1892, with in-

closures, from William F. Smith, United States agent, major of Engineers, U. S. Army, retired, on the same subject.

The resolution of the Senate is returned herewith.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

LETTER FROM THE CONGRESSIONAL DELEGATION OF THE STATE OF
DELAWARE.

WILMINGTON, DEL., *December 1, 1891.*

DEAR SIR: It appears by a report of the Chief of Engineers of the Army and of the division engineer, Col. Craighill, that the cost of the inland water way between Delaware Bay and Rehoboth Bay will amount to \$718,226, and that the ultimate cost may be found to be near \$1,000,000, rather than \$231,500, the estimate submitted, and, in view of these statements, the Chief Engineer recommends that the whole matter be remanded to Congress, and that the \$50,000 appropriated by act of September 19, 1890, be not expended until Congress has taken further action in the matter.

Since learning of the above-reported recommendation, we, with others interested, have taken into consideration whether a canal of smaller dimensions and much less cost would not suffice for the present needs, and have concluded that it would.

The original project upon which these appropriations were made was for a water way 70 feet wide at the bottom and 6 feet in depth at mean low water. The project under the appropriations has been carried through for a cut between Indian River and Assawoman bays of 20 feet in width at bottom and 4 feet in depth at mean low water. This has initiated a business by water of value to the States of Delaware, Maryland, and Virginia. We desire to say that, for all commercial purposes for years to come, it would seem that a canal of much less cross section would be all that is needed, and that, if need be, in the future such canal may be widened to suit such increase in commerce. The suggestion has also been made from citizens of the locality that another route be laid down for the canal which would cost very much less money, and, at the same time, avoid the objections raised by Mr. Stierle, the assistant engineer, to the route as located by Mr. Charles Bird.

We therefore request the Secretary to order the reëxamination of the question to see whether by a decreased area of cross section, and possibly with a change of route, a project may not be presented which shall satisfy the needs of commerce and keep the expenditure at least within the money already appropriated.

Very truly, yours,

GEO. GRAY,
ANTHONY HIGGINS,
J. W. CAUSEY.

WAR DEPARTMENT, *December 11, 1891.*

Respectfully referred to the Chief of Engineers for report.

By order of the acting Secretary of War:

JOHN TWEEDALE,
Chief Clerk.

[Second indorsement.]

OFFICE CHIEF OF ENGINEERS,
U. S. ARMY,
December 14, 1891.

Respectfully referred to W. F. Smith, United States agent, Major of Engineers, U. S. Army, retired, for report.

To be returned.

By command of Brig. Gen. Casey:

H. M. ADAMS,
Major, Corps of Engineers.

(Through Col. Wm. P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[Fourth indorsement.]

U. S. ENGINEER OFFICE,
Wilmington, Del., December 18, 1891.

Respectfully returned to the Chief of Engineers, U. S. A., with accompanying report of this date.

WM. F. SMITH,
United States Agent.

(Through Col. Wm. P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[Seventh indorsement.]

U. S. ENGINEER OFFICE,
Baltimore, Md., December 24, 1891.

Respectfully returned to the Chief of Engineers.

I have recently made an inspection of much of this route. I believe a canal of the dimensions mentioned by the local engineer in his report of December 18, 1891, will suffice for present needs and for a number of years, if provided with turn-outs as proposed. The work can be done for the sum of money given in his estimate in the same report, provided the appropriations be liberal and the work not drawn out over many years instead of being completed in two, as it might readily be if in the hands of an efficient contractor.

The additional survey proposed by the local engineer is recommended.

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

[Eighth indorsement.]

OFFICE CHIEF OF ENGINEERS,
U. S. ARMY,
December 28, 1891.

Respectfully returned to the Secretary of War.

Hons. George Gray, Anthony Higgins, and John W. Causey request reëxamination of the question, to determine whether, by a decrease of cross-section and possibly a change of route, a project for the water way between Chincoteague Bay and Delaware Bay may not be presented which shall satisfy the needs of commerce and keep the expenditure within the money already appropriated.

Inviting attention to the accompanying report of W. F. Smith, United States agent, Major of Engineers, U. S. A., retired, the officer in charge of the work, and report of Col. Wm. P. Craighill, Corps of Engineers,

4 WATER WAY BETWEEN DELAWARE BAY AND REHOBOTH BAY.

Division Engineer, Southeast Division, I have to recommend that Major Smith be authorized to run the proposed new line of levels between the upper part of the Stockley Creek and Bird route, at an estimated cost of \$250, to be paid from appropriation for examinations, surveys, and contingencies of rivers and harbors.

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

[Ninth indorsement.]

WAR DEPARTMENT, *December 29, 1891.*

Approved as recommended by the Chief of Engineers.

By order of the Acting Secretary of War:

JOHN TWEEDALE.
Chief Clerk.

[Tenth indorsement.]

OFFICE CHIEF OF ENGINEERS,
U. S. ARMY,
February 10, 1892.

Respectfully returned to the Secretary of War.

The examination within requested by the Senators and Representative from Delaware for a new route for canal between Rehoboth Bay and Delaware Bay has been completed, and copies of Major Smith's report, dated February 4, 1892, and accompanying paper submitting the results of the examination, are inclosed, with recommendation that they be furnished Senator Gray.

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

LETTER OF THE ACTING SECRETARY OF WAR.

WAR DEPARTMENT,
Washington, December 11, 1891.

SIR: I have the honor to acknowledge the receipt of the joint letter, dated the 1st instant, of yourself, Hon. Anthony Higgins, and Hon. John W. Causey, relative to the construction of the inland water way between Delaware Bay and Rehoboth Bay upon a smaller scale than originally proposed, and in reply beg to advise you that the matter has been referred to the Chief of Engineers for his views thereon.

Very respectfully,

L. A. GRANT,
Acting Secretary of War.

HON. GEORGE GRAY,
United States Senate.

LETTER OF THE ACTING SECRETARY OF WAR.

WAR DEPARTMENT,
Washington, December 11, 1891.

SIR: I have the honor to acknowledge the receipt of the joint letter, dated the 1st instant, of yourself, Hon. George Gray, and Hon. John W. Causey, relative to the construction of the inland water way between

Delaware Bay and Rehoboth Bay upon a smaller scale than originally proposed, and in reply beg to advise you that the matter has been referred to the Chief of Engineers for his views thereon.

Very respectfully,

L. A. GRANT,
Acting Secretary of War.

Hon. ANTHONY HIGGINS,
United States Senate.

LETTER OF THE ACTING SECRETARY OF WAR.

WAR DEPARTMENT,
Washington, December 11, 1891.

SIR: I have the honor to acknowledge the receipt of the joint letter, dated the 1st instant, of yourself, Hon. George Gray and Hon. Anthony Higgins, relative to the construction of the inland water way between Delaware Bay and Rehoboth Bay upon a smaller scale than originally proposed, and in reply beg to advise you that the matter has been referred to the Chief of Engineers for his views thereon.

Very respectfully,

L. A. GRANT,
Acting Secretary of War.

Hon. JOHN W. CAUSEY,
House of Representatives.

REPORT OF WM. F. SMITH, UNITED STATES AGENT, MAJOR OF ENGINEERS, U. S. ARMY, RETIRED.

UNITED STATES ENGINEER OFFICE,
Wilmington, Del., December 18, 1891.

GENERAL: In compliance with the instructions contained in the second indorsement on the accompanying letter, dated December 1, 1891, relating to a reduction in the dimensions of the proposed canal between Rehoboth Bay and Delaware Bay, I have the honor to report that for a certain kind of commerce a canal of 6 feet in depth at low water, with a width of 20 feet at the bottom and necessary "turn outs" for the passing of vessels, would be ample, and probably such a canal would answer all necessary purposes, except during war time, for some years to come. When needed, the canal could then be widened to suit exigencies.

I have made an estimate for such a canal on the line recommended in my report of April 7, 1891, on the survey for a canal from Rehoboth Bay to Delaware Bay, called the "Stockley Creek route," with "turn outs" at every mile of distance of 70 feet in width at bottom and 6 feet in depth at low water and 150 feet in length.

6 WATER WAY BETWEEN DELAWARE BAY AND REHOBOTH BAY.

The amount of material to be excavated for such a cross section is as follows:

For fast land, 3 feet and over above high water, 907,148 cubic yards, at 20 cents.....	\$181,429.60
In marshes and glades, 744,182 cubic yards, at 15 cents.....	111,627.30
	<hr/> 293,056.90
Add—	
For grubbing 50 acres, at \$50	2,500.00
For two railroad bridges of iron, at \$5,500	11,000.00
For two county road bridges, at \$1,000	2,000.00
	<hr/> 308,556.90
Ten per cent for contingencies of engineering, etc.....	30,855.69
	<hr/> 339,412.59
Total.....	

Taking into consideration the reduction in the cross section of the canal, it is possible that a new line of levels run over a small portion of the line between the upper part of the Stockley Creek and Bird route might develop a cheaper line for a canal of the diminished dimensions. To determine that, a survey should be made, for which I would estimate the cost at \$250.

Very respectfully, your obedient servant,

WM. F. SMITH,
United States Agent.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

REPORT OF WILLIAM F. SMITH, UNITED STATES AGENT, MAJOR OF ENGINEERS, U. S. ARMY, RETIRED.

UNITED STATES ENGINEER OFFICE,
Wilmington, Del., February 4, 1892.

GENERAL: Referring to my report of December 18, 1891, in which the suggestion is made that a new line of levels run over a portion of the line between the upper part of the Stockley Creek and Bird route, a part of the proposed water way from Chincoteague Bay, Virginia, to Delaware Bay might develop a cheaper line for a canal of diminished dimensions, I have the honor to submit the following report upon a survey of the section referred to, made in January, 1892, in accordance with instructions contained in Department letter dated December 30, 1891.

An estimate for a new route, which is shown on the tracing forwarded by mail today, in a separate package, providing for a canal 20 feet wide at bottom and 6 feet below mean low water, is herewith submitted.

The new line, on leaving Lewes Creek, follows close along the fast land bordering on the marsh land of the valley, so as to have part excavation and part embankment for the water way, and giving an outside embankment of sufficient cross section to resist the currents and waves on the marsh lands in case of excessive tides accompanied with gales.

From the information gathered from the inhabitants of the locality, it is believed that the selected line will be measurably safe from such encroachments.

This new route is 2,950 feet longer than the first recommended.

The estimates for a canal 20 feet wide at bottom and 6 feet deep are as follows: Along the Stockley Creek route, \$339,412; along the Lewes

Creek route, the last one surveyed, \$241,224. Only two bridges, suitable for use by railroad and wagon road, are included in the estimate for the latter route, at a cost of \$7,500 each. This latter item presupposes a willingness on the part of the State of Delaware to have the wagon roads of the locality changed to suit the proposed bridges. I am assured that that will be done. Such a change would be of great value both in the cost of bridges and in the number of them, which should be made as small as is consistent with adequate facilities to the inhabitants of the locality. A copy of the report of Mr. A. Stierle, assistant engineer, upon the survey, is herewith inclosed.

Very respectfully, your obedient servant,

WM. F. SMITH,
United States Agent.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. Wm. P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[Third indorsement.]

U. S. ENGINEER OFFICE,
Baltimore, Md., February 9, 1892.

Respectfully returned to the Chief of Engineers.

When the Stockley Creek route was approved, it was with the expectation the canal would be of the larger size. The proposition of the Delaware delegation in Congress to diminish the dimensions of the canal reopened the question of location in part. The new route now proposed by the local engineer will answer for the smaller canal, and is very much cheaper than the portion of the previously adopted route for which its substitution is suggested.

To be enabled to dispense with several bridges is a very great advantage. If there were a question of rapid transit, the greater length of the new route would be a serious objection to it, but this is not thought to be a matter of much importance in this case.

The change of route to the extent suggested by the local engineer, and as shown on the tracing which accompanied his report, is recommended.

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

REPORT OF MR. A. STIERLE, ASSISTANT ENGINEER.

UNITED STATES ENGINEER OFFICE,
Wilmington, Del., February 4, 1892.

SIR: In compliance with your orders, a survey was recently made of a portion of the country near Rehoboth Bay, Delaware, "between the upper part of the Stockley Creek and Bird route, with the view to develop a cheaper line for a canal of diminished dimensions," for the inland water way between Rehoboth and Delaware bays.

This small portion was not included when the general surveys were made, and citizens of the locality had suggested that a line through it would probably cost no more than one following the low lands along Lewes Creek, and would be located at a greater distance from the shore of the ocean. The section referred to is immediately south of Hollands Glade, and embraces the numerous water courses leading into Gordons Pond from the westward. A traverse line and a line of levels were run over the ground indicated, and the result was plotted on the general map made last year.

The data obtained facilitate the projection of a new route for a canal with reduced dimensions. The route is named the Lewes Creek route, and is shown in green on

8 WATER WAY BETWEEN DELAWARE BAY AND REHOBOTH BAY.

the accompanying tracing. The Stockley Creek route, for which an estimate for a canal of diminished dimensions was submitted to the Department on December 18, 1891, is shown on the same sheet in red. The estimate was \$339,412 for a cut 20 feet wide on the bottom, and 6 feet deep below mean low-water level. The estimate for a cut of the same cross section along the route herewith submitted—the Lewes Creek route—is \$241,224. The latter route is about one-half of a mile longer, and runs throughout its whole course adjacent to and nearly parallel with the preliminary line of 1885, with this difference, that the greater portion of it is made to abut against or to follow the base of the high land on the western edge of the great marsh through which Lewes Creek flows. The prices adopted for the cost of excavating in both the estimates above referred to, viz, 20 cents per cubic yard for material above and 15 cents for that below high-water level, are believed to be near the present market value for that kind of work, with a slight inclination toward the margin of safety. The usual percentage (10) for contingencies was also added to the estimates.

The preliminary estimate for the "cheapest" route, the Lewes Creek route, is as follows:

Excavation (1,177,023 cubic yards):

Above high-water level, 550,829 cubic yards, at 20 cents.....	\$110,165.80
Below high-water level, 626,194 cubic yards, at 15 cents.....	93,929.10
Grubbing 4 acres, at \$50 per acre.....	200.00
Two combination draw bridges for railroad and public traffic, at \$7,500 each	15,000.00
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	219,294.90
Add 10 per cent for contingencies	21,929.10
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Total	241,224.00

The results of the reëxamination ordered by the Secretary of War, upon the request of the Congressional delegation from Delaware, have failed to bring to light a new route for a canal "which would cost very much less money" than those already considered; and the reduction of the estimates now submitted is altogether due to the reduction in the cross-sectional area of the canal, which, with a less width than originally proposed, is held to be sufficient for the present needs of commerce. The advantages of the Stockley Creek route and the objections to any other route, like the Lewes Creek route, following mainly the lowlands in close proximity to the ocean, have been fully described in the report of April 7, 1891.

Very respectfully, your obedient servant,

A. STIERLE,
Assistant Engineer.

Gen. WM. F. SMITH,
United States Agent.

LETTER OF THE ASSISTANT SECRETARY OF WAR.

WAR DEPARTMENT,
Washington, February 12, 1892.

SIR: Referring to the joint request of yourself, Senator Higgins, and Representative Causey, dated December 1, 1891, that this Department order a reëxamination of the route and plans for an inland water way between Delaware and Rehoboth bays with a view of ascertaining whether a different route and a decreased area of cross section of a canal can not be selected which shall satisfy the needs of commerce, and keep the expenditure within the money appropriated by the act of September 19, 1890, I have the honor to advise you that, under instructions from the Chief of Engineers, the officer in charge of the improvement has made a new survey of a portion of the line between the upper part of Stockley Creek and Bird route, which is a part of the proposed water way; and I now have the honor to transmit herewith, for the information of yourself, Senator Higgins, and Representative Causey,

a copy of a report of Maj. W. F. Smith, United States Engineers, retired, dated the 4th instant, together with a copy of the report of his assistant engineer, of the same date, on the subject.

The tracing referred to in the report of Major Smith is retained in the office of the Chief of Engineers.

Very respectfully,

L. A. GRANT,
Assistant Secretary of War.

Hon. GEORGE GRAY,
United States Senate.

LETTER FROM THE CONGRESSIONAL DELEGATION OF THE STATE OF
DELAWARE.

UNITED STATES SENATE,
Washington, D. C., February 26, 1892.

SIR: Your letter of the 12th instant is received, transmitting the report of Maj. W. F. Smith recommending a new route for a portion (between Delaware and Rehoboth bays) of the inland water way, with the favorable indorsement thereon of Col. W. P. Craighill, Division Engineer, and in response thereto we desire to express our approval of the proposed change of route and cross section, and request that immediate steps be taken to obtain the title and begin the work under the appropriation made by the act of 1890.

Very respectfully,

GEO. GRAY,
ANTHONY HIGGINS,
J. W. CAUSEY.

The SECRETARY OF WAR.

[Second indorsement.]

OFFICE CHIEF OF ENGINEERS,
U. S. ARMY,
March 1, 1892.

Respectfully returned to the Secretary of War.

The act of July 5, 1884, provided for survey of line for inland water way from Chincoteague Bay to Delaware Bay. Under this act a survey was made and estimates submitted for continuous inland navigation from Chincoteague Bay to Delaware Bay. Proposed width of channel at bottom, 70 feet; depth at mean low water, 6 feet; estimated cost, \$350,000.

The section between Rehoboth and Delaware bays was estimated to cost as follows:

New channel in Delaware Bay.....	\$23, 280
New mouth to Rehoboth Bay.....	219, 580
Dredging Rehoboth Bay at Thompsons Island.....	500
	<hr/> 243, 360

Upon survey following act of September 19, 1890, for location of route between Rehoboth and Delaware bays, an estimate for the line selected (Stockley Creek route) was submitted by W. F. Smith, United States agent, Major of Engineers U. S. Army, retired, amounting to \$574,581. This estimate was increased by Col. Wm. P. Craighill, Corps of Engineers, 25 per cent, \$143,645; total, \$718,226.

10 WATER WAY BETWEEN DELAWARE BAY AND REHOBOTH BAY.

At the request of the Delaware Congressional delegation a new line of levels was run between Rehoboth and Delaware bays, with view to a cheaper line for a canal of smaller dimensions.

Report on this survey, with estimates for canal 20 feet wide at bottom and 6 feet deep, was submitted February 4, 1892. The estimates submitted are as follows:

Stockley Creek route.....	\$339,412
Lewes Creek route (the one last surveyed).....	241,224

Appropriations have been made for the water way as follows:

August 5, 1886.....	\$18,750
August 11, 1888.....	50,000
September 19, 1890.....	50,000

It is recommended that the new route be adopted and that Major Smith be directed to secure, if possible, the right of way free of cost to the United States, as contemplated by act of September 19, 1890.

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

[Third indorsement.]

WAR DEPARTMENT, *March 2, 1892.*

Approved as recommended by the Chief of Engineers.

By order of the Secretary of War:

JOHN TWEEDALE,
Chief Clerk.

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